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L2: Entry 1 of 2

File: USPT

Apr 21, 1998

DOCUMENT-IDENTIFIER: US 5742433 A

TITLE: Diffractive optical device including grating elements with different grating periods and duty ratios

Brief Summary Text (27):

In one embodiment of the invention, the substrate includes a light guide region for propagating the light.

Detailed Description Text (7):

The diffractive optical device 10 is used, for example, as an off-axis lens as is shown in FIG. 6. An axis of light incident on an off-axis lens is different from an axis of light outgoing from the off-axis lens. As is shown in FIG. 6, light 5 which is propagated zigzag in a light guide region 12 in the substrate 1 goes out through the top surface of the substrate 1 as outgoing light 6. The light guide region 12 is provided with reflective layers 4A and 4B respectively on a top surface and a bottom surface thereof for reflecting the light 5 alternately in repetition. Thus, the light 5 is propagated zigzag from the negative side to the positive side of axis y and is incident on the grating section 2 at an incident angle of which is offset with respect to the vertical direction to the top surface of the substrate 1. Then, the light 5 is transmitted through the grating section 2 and goes out to above the substrate 1 vertically. Herein, "goes out vertically" means that the axis of the outgoing light 6 is substantially vertical to the top surface of the substrate 1, namely, parallel to axis z. By utilizing a part of the substrate 1 as the light guide region 12, the size of an optical system of the diffractive optical device 10 in the direction of axis z is significantly reduced.

Detailed Description Text (47):

As is shown in FIG. 17, the diffractive optical device 40 is used as an off-axis lens. As is shown in FIG. 17, the light 5 which is propagated zigzag in the light guide region 12 in the substrate 1 goes out through the top surface of the substrate 1 as outgoing light 6. The light guide region 12 is provided with the reflective layers 4A and 4B respectively on the top surface and the bottom surface thereof for reflecting the light 5 alternately in repetition. Thus, the light 5 is propagated zigzag and finally goes out above the substrate 1 vertically.

US Reference Patent Number (7):

5283690

US Reference Group (7):

5283690 19940200 Miyake et al. 359/575

CLAIMS:

9. A diffractive optical device according to claim 2, wherein the substrate includes a light guide region for propagating the light.

WEST

End of Result Set

L2: Entry 2 of 2

File: USPT

Oct 1, 1996

DOCUMENT-IDENTIFIER: US 5561558 A
TITLE: Diffractive optical device

Brief Summary Text (27):

In one embodiment of the invention, the substrate includes a light guide region for propagating the light.

Detailed Description Text (7):

The diffractive optical device 10 is used, for example, as an off-axis lens as is shown in FIG. 6. An axis of light incident on an off-axis lens is different from an axis of light outgoing from the off-axis lens. As is shown in FIG. 6, light 5 which is propagated zigzag in a light guide region 12 in the substrate 1 goes out through the top surface of the substrate 1 as outgoing light 6. The light guide region 12 is provided with reflective layers 4A and 4B respectively on a top surface and a bottom surface thereof for reflecting the light 5 alternately in repetition. Thus, the light 5 is propagated zigzag from the negative side to the positive side of axis y and is incident on the grating section 2 at an incident angle of which is offset with respect to the vertical direction to the top surface of the substrate 1. Then, the light 5 is transmitted through the grating section 2 and goes out to above the substrate 1 vertically. Herein, "goes out vertically" means that the axis of the outgoing light 6 is substantially vertical to the top surface of the substrate 1, namely, parallel to axis z. By utilizing a part of the substrate 1 as the light guide region 12, the size of an optical system of the diffractive optical device 10 in the direction of axis z is significantly reduced.

Detailed Description Text (47):

As is shown in FIG. 17, the diffractive optical device 40 is used as an off-axis lens. As is shown in FIG. 17, the light 5 which is propagated zigzag in the light guide region 12 in the substrate 1 goes out through the top surface of the substrate 1 as outgoing light 6. The light guide region 12 is provided with the reflective layers 4A and 4B respectively on the top surface and the bottom surface thereof for reflecting the light 5 alternately in repetition. Thus, the light 5 is propagated zigzag and finally goes out above the substrate 1 vertically.

US Reference Patent Number (6):5283690US Reference Group (6):5283690 19940200 Miyake et al. 359/575

CLAIMS:

15. A diffractive optical device according to claim 1, wherein the substrate includes a light guide region for propagating the light.


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02/17/03	Sell	150	ELN	Day/ Market	0.00	Mkt	--	--	<u>57</u>			
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06/07/02	Sell	600	CVGR	Day/ Market	--	Mkt	--	--	<u>55</u>			
06/07/02	Sell	100	SGR	Day/ Market	--	Mkt	--	--	<u>54</u>			
03/06/02	Buy	100	Q	Day/ Market	--	Mkt	--	--	<u>53</u>			
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02/20/02	Buy	100	LU	Day/ Market	--	Mkt	--	--	<u>45</u>			
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